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United States Environmental Protection Agency
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EPA

Fact Sheet

Better Assessment Science Integrating point and Nonpoint Sources, Version 3 (BASINS 3.0)

Summary
Version 3.0 of the Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) software system has been released. BASINS has three major objectives:

- To facilitate examination of environmental information,
- To support analysis of environmental systems,
- To provide a framework for examining management alternatives.

Background
Originally released in 1996, with a second release in 1998, BASINS comprises a suite of interrelated components. BASINS' databases and assessment tools are directly integrated within an ArcView environment. These components work together to support the user performing various aspects of environmental analysis. The components include (1) nationally derived databases with Data Extraction and Project Builder tools; (2) assessment tools (TARGET, ASSESS, and Data Mining) that address large- and small-scale characterization needs; (3) utilities to facilitate importing local data and for organizing and evaluating data; (4) Watershed Delineation tools; (5) utilities for classifying elevation (DEM), land use, soils, and water quality data; (6)Watershed Characterization Reports that facilitate compilation and output of information on selected watersheds; (7) an in- stream water quality model; (8) two watershed loading and transport models and (9) a simplified GIS based nonpoint annual loading model.

BASINS 3.0 also includes many new features and improvements.

- An automatic delineation tool that allows users to delineate watershed based on a Digital Elevation Model (DEM) grid formatted data..
- An enhanced manual delineation tool that allows users additional flexibility in editing shapes and attributes of manually delineated watersheds.
- A new Windows interface for the HSPF model that fully supports interaction with the entire HSPF input sequence.
- A watershed model called Soil Water Assessment Tool (SWAT), developed by the U.S. Department of Agriculture's ARS.
- A model called PLOAD, developed by CH2M-Hill, which uses export coefficients to estimate watershed loading.
- A model postprocessor and scenario generator called GenScn. Originally developed for the U.S. Geological Survey (USGS), GenScn allows users to manage, visualize, analyze, and compare the results of several HSPF and/or SWAT simulations.
- A time series data management utility called WDMUtil.
- A grid projector that allows the user to project grid data.
- An improved Permit Compliance System point source (PCS) database with annual loadings updated through 1999.
- DEM (grid format) data on the distribution CD buffered to 8 digit HUC boundaries.

What's New in BASINS 3.0?
This major release includes an overhaul of the system architecture that packages system components as ArcView extensions and external programs. This architecture is open and flexible. It promotes the growth of BASINS by allowing users and developers to write their own extensions to the system.

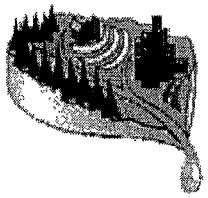
How to Get Additional Information
For further information about BASINS 3.0, contact:
basins@epa.gov

or the BASINS web site
http://www.epa.gov/ost/basins/

U.S. Environmental Protection Agency

About BASINS 3.0

"A powerful tool for managing watersheds"



BASINS 3.0 Factsheet (10kb) PDF Format.

BASINS is a multipupose environmental analysis system for use by regional, state, and local agencies in performing watershed and water quality based studies. This new software makes it possible to quickly assess large amounts of point source and nonpoint source data in a format that is easy to use and understand. Installed on a personal computer, BASINS allows the user to assess water quality at selected stream sites or throughout an entire watershed. It is an invaluable tool that integrates environmental data, analytical tools, and modeling programs to support development of cost-effective approaches to environmental protection.

The U.S. Environmental Protection Agency's water programs and their counterparts in states and pollution control agencies are increasingly emphasizing watershed and water quality-based assessment and integrated analysis of point and nonpoint sources. **B**etter **A**ssessment **S**cience **I**ntegrating point and **N**onpoint **S**ources **(BASINS)** is a system developed to meet the needs of such agencies. It integrates a geographic information system (GIS), national watershed and meteorologic data, and state-of-the-art environmental assessment and modeling tools into one convenient package.

Originally released in September 1996, BASINS addresses three objectives: (1) to facilitate examination of environmental information, (2) to provide an integrated watershed and modeling framework, and (3) to support analysis of point and nonpoint source management alternatives.

BASINS supports the development of total maximum daily loads (TMDLs), which require a watershed-based approach that integrates both point and nonpoint sources. It can support the analysis of a variety of pollutants at multiple scales, using tools that range from simple to sophisticated.

Overcoming the lack of integration, limited coordination, and time-intensive execution typical of more traditional assessment tools, BASINS makes watershed and water quality studies easier by bringing key data and analytical components together "under one roof."

Beside BASINS' primary role in creating TMDL analysis, it has been useful in identifying impaired surface waters from point and nonpoint pollution, wet weather combined sewer overflows (CSO), storm water management issues, and drinking water source protection. BASINS also has been used in urban/rural landuse evaluations, animal feeding operations, and habitat management practices. Another

unexpected use of BASINS is providing schools and educational institutions with a quick, free resource of GIS and surface water data for the United States.

The heart of BASINS is its suite of interrelated components essential for performing watershed and water quality analysis. These components are grouped into several categories:

1. nationally derived environmental and GIS databases (the 48 continuous states and the District of Columbia);
2. assessment tools (TARGET, ASSESS, and DATA MINING) for evaluating water quality and point source loadings at a large or small scales;
3. utilities including local data import and management of local water quality observation data;
4. two watershed delineation tools;
5. utilities for classifying elevation (DEM), landuse, soils, and water quality data;
6. an in-stream water quality model (QUAL2E);
7. a simplified GIS based nonpoint source annual loading model (PLOAD);
8. two watershed loading and transport models (HSPF and SWAT);
9. a postprocessor (GenScn) of model data and scenario generator to visualize, analyze, and compare results from HSPF and SWAT; and
10. many mapping, graphing, and reporting formats for documentation.

BASINS' databases and assessment tools are directly integrated within an ArcView GIS environment. By using GIS, a user can fully visualize, explore, and query to bring a watershed to life. The simulation models run in a Windows environment, using data input files generated in ArcView.

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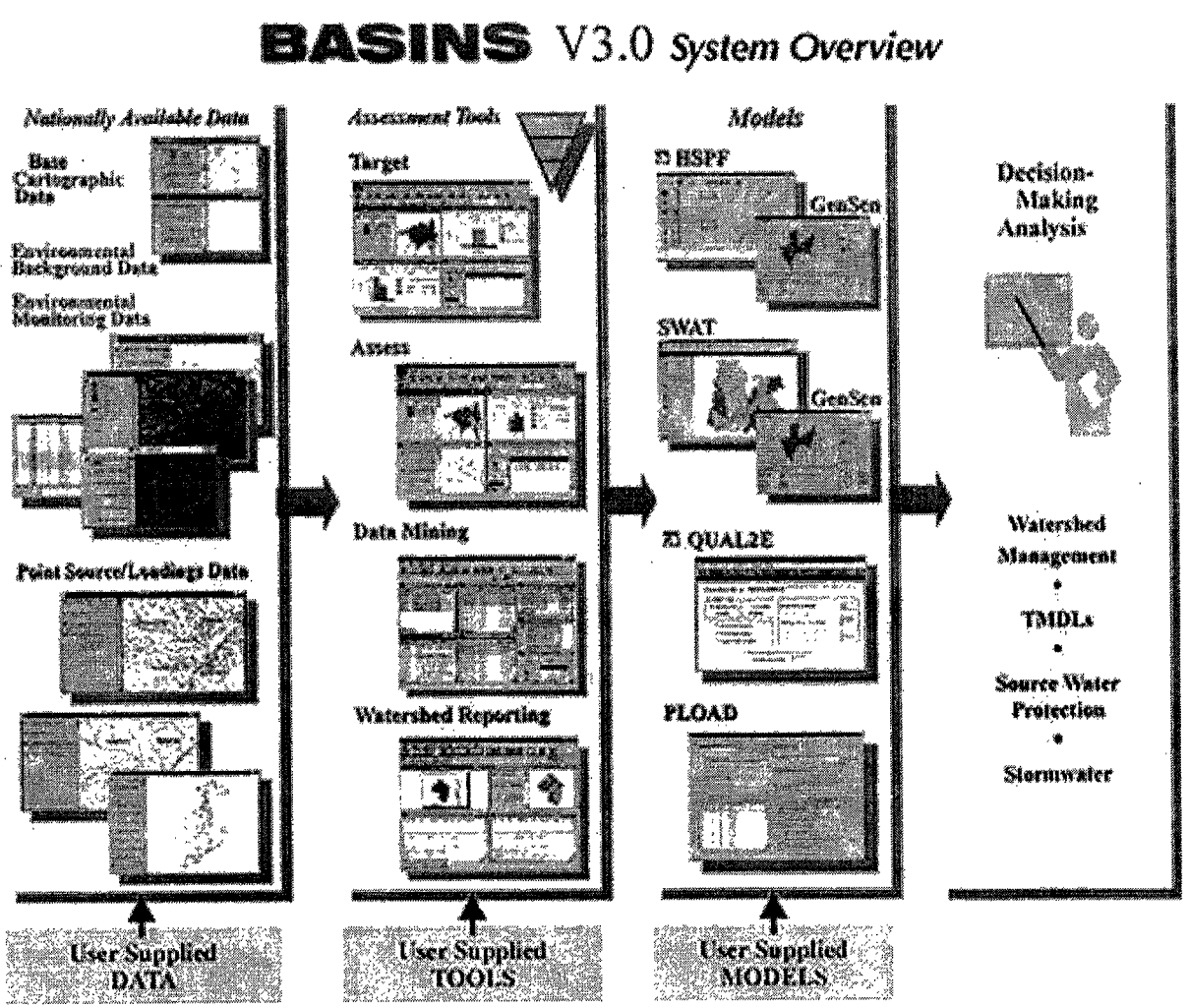

DATA AND METADATA

ADDITIONAL INFORMATION

For more information on content, availability, and training, please contact:
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